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CLAIMS

- 5 1. A recombinant fusion enzyme VHb-DAAO, expressible from a recombinant fusion gene consisting of a gene encoding a bacterial hemoglobin and a gene encoding a D-amino acid oxidase.
- 10 2. A recombinant fusion enzyme bacterial hemoglobin-D-amino acid oxidase as set forth in claim 1, wherein said bacterial hemoglobin contains a full or a partial length of a *Vitreoscilla* hemoglobin peptide sequence or its functionally analogous peptide sequence.
- 15 3. A method for producing a recombinant fusion enzyme VHb-DAAO, which comprises fusing a bacterial hemoglobin gene and a D-amino acid oxidase gene to each other by a polymerase chain reaction to give a fusion gene, inserting the fusion gene in an expression vector, expressing the fusion gene in *E. coli*, and purifying the fused enzyme VHb-DAAO.
- 20 4. A recombinant vector pALTER-EX2/VHb-DAAO, which is constructed by introducing a fusion gene consisting of a bacterial hemoglobin gene and a D-amino acid oxidase.
5. A recombinant *E. coli* (KCTC 8923P), which is transformed with the recombinant vector pALTER-EX2/VHb-DAAO of claim 4.